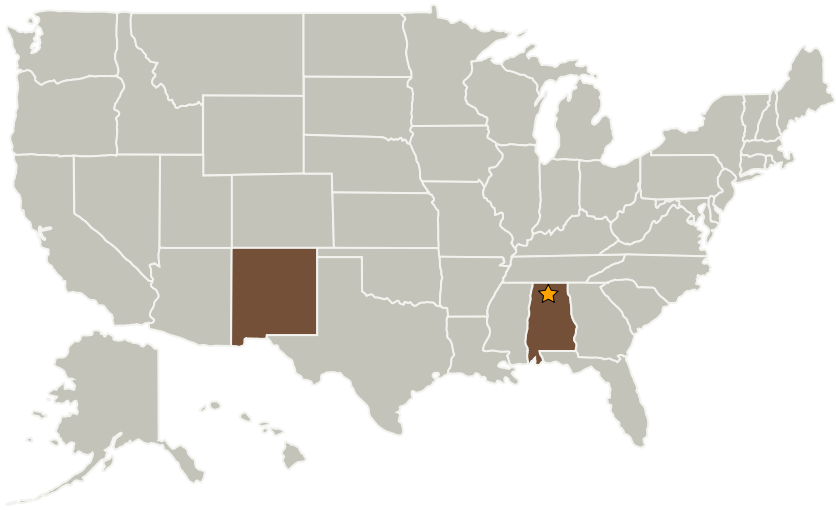
Actively Cooled Ceramic Composite Nozzle Material, Phase II

Completed Technology Project (2004 - 2006)

Project Introduction

The Phase I Project demonstrated the capability of the Pyrowave? manufacturing process to produce fiber-reinforced ceramics (FRCs) with integral metal features, such as attachment lugs or tubes. In addition, the Phase I Project demonstrated the utility of thermography as a simple, rapid, and inexpensive inspection tool. With the increased emphasis on the exploration of space, technologies supporting fission-powered spacecraft, such as those under development through Project Prometheus, will become increasingly important. For the Phase II Project, Thor Technologies, Inc. will team with Los Alamos National Laboratory (LANL), a computational design firm, a small NDE firm, and a major spacecraft OEM to design, manufacture, and deliver a prototype lightweight, high performance thermal radiator component for fission powered spacecraft, such as the Jupiter Icy Moons Orbiter. The project team has the experience and capability to execute the proposed development plan within the Phase II budget and schedule. The proposed technology will simplify the design and facilitate the utilization of fission-powered, which are essential to the exploration celestial bodies more distant from the Sun than Mars.

Primary U.S. Work Locations and Key Partners



Actively Cooled Ceramic Composite Nozzle Material, Phase II

Table of Contents

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Marshall Space Flight Center (MSFC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Actively Cooled Ceramic Composite Nozzle Material, Phase II

Completed Technology Project (2004 - 2006)

Organizations Performing Work	Role	Type	Location
★Marshall Space Flight Center(MSFC)	Lead Organization	NASA Center	Huntsville, Alabama
Thor Technologies, Inc.	Supporting Organization	Industry	Albuquerque, New Mexico

Primary U.S. Work Locations	
Alabama	New Mexico

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX14 Thermal Management Systems
  - TX14.1 Cryogenic Systems
    - TX14.1.3 Thermal Conditioning for Sensors, Instruments, and High Efficiency Electric Motors